Space Weather Forecast

Issued on Saturday, 05 March 2022 at 13:09 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight Chance of G1/Minor Geomagnetic Storms this UTC weekend. Daily Chance of R1 Minor Radio Blackouts throughout.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Low over the period, with occasional low-level common class flares. There are currently four numbered sunspots regions on the visible disc. AR2954 has rotated off the northwest limb. AR2955 closely following on behind, and remains stable. AR2960 saw continued growth in its leading spot, although some decay of its intermediate spots. AR2957 saw proliferation and growth around its trailing spot, while AR2961 saw spreading and some fading of its intermediate spots.

A small 'filament' (arc of plasma) was seen to disappear from the northwestern quarter of the sun on coronagraph imagery around 04/1500UTC, however this does not appear to have lifted off. The main Coronal Mass Ejection (CME) activity in the 24 hours was a large but diffuse and slow far-sided event from the western solar hemisphere, seen into the UTC Friday evening heading well south and away from the Earth on available imagery. No Earth-directed CMEs were in evidence.

Solar Wind / Geomagnetic Activity:
The solar wind started the period at slightly elevated levels, near 480km/s, with a gradual decline to background levels, near 380km/s, which was probably due to the waning influence of one of two coronal holes. However, solar winds have recently increased again, back up to slightly elevated and briefly elevated levels, near 500km/s, which may be connection with aforementioned, second coronal hole following on behind the first. The magnetic field started the period mostly weak, but increased to become Moderate. The all important north-south component was variable, becoming moderate by the end of the period. Geomagnetic activity as a result of the above parameters was Quiet to Unsettled, with a peak of Kp3 in the 00-03UTC and provisionally an Active interval in the 09-12UTC period.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be low, with further occasional common-class flares and a chance of moderate-class flares. No significant regions are expected to rotate onto or leave the visible side of the sun through the period.

Solar Wind / Geomagnetic Activity: There are two parts to the geomagnetic forecast: the current 'coronal hole' fast wind; and also a possible glance from a CME emitted on 02/1739UTC in relation to the moderate class X-ray flare from a now-faded sunspot.
There remains a slight chance of Minor Storm G1 from the current fast wind into the UTC weekend, with this risk extending later in the weekend as a result of the uncertain influence of

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the aforementioned CME. Activity should wane into the new working week, becoming most reliably quiet by day four, Tuesday 08 March.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	20	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	20	20	20
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	2	2
Very Active	≥ S3 *	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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